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**NUTRICOLOGICAL CORRECTION OF PROTEIN METABOLISM
IN PATIENTS WITH FIRST TIME DIAGNOSED PULMONARY TUBERCULOSIS**

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Introduction

Globally, tuberculosis (TB) is one of the most current socioeconomic and medical problems of our time [6, 7, 2]. Intensive antimycobacterial therapy (AMBT) dominates the complex treatment of TB patients [4, 6]. There is a need for targeted improvement of complex pathogenetic treatment of TB, with the use of drugs that to help optimize the functioning of the patient's defense systems and increase the effectiveness of etiotropic therapy [2, 5, 6]. Tuberculosis leads to significant disorders of tissue metabolism and the development of dystrophic processes. Tuberculosis intoxication, toxic effects of antimycobacterial drugs (AMBD), imbalance of the bases of rational nutrition is the cause of metabolic disorders in the body. There is a tendency to impaired protein metabolism (PM), namely a decrease in the general level of amino acids (AC) in the acute phase of the tuberculosis process, not only due to the essential amino acids (EAC), but also replaceable (RAC) due to insufficient synthesis and their excessive use for energy and the plasticity needs of the body. Insufficient provision of tissues with essential amino acids leads to an imbalance and a decrease in the level of amino acids in the blood. The content of amino acids in blood plasma affects metabolic processes, and their dynamic equilibrium is provided by the catabolism of proteins in various organs and tissues and exogenous intake with food [1, 3].

Aim

To study the effectiveness of the use of nutricional correction of protein metabolism (NCPM) in the complex treatment of patients with first time diagnosed pulmonary tuberculosis.

Material and Methods

67 patients with TB were examined, among them men prevailed — 53 (79.1 %), women were 14 (20.9 %). The average age of patients was 38.4 ± 1.8 years. All of them were divided into two groups: group I — 35 patients (received standard AMBT in the intensive phase of treatment in combination with a prebiotic (lactulose), 20 ml 3 times per day and nutritional correction of protein metabolism was carried out) and group II — 32 patients (received standard AMBT). Nutricional protein metabolism was performed by enriching the diets of patients with appropriate products. We used an individual approach in the design of the diet. The stage of development of the tuberculosis process and the general condition of the body were taken into consideration. The control group consisted of 30 practically healthy individuals of comparable sex and age. To study the state of protein metabolism, the content of individual replaceable amino acids (ornithine, aspartic acid, serine, glutamic acid, proline, glycine, alanine, cysteine, tyrosine, glutamine) and essential amino acids (lysine, histidine, arginine, threonine, valine, methionine, isoleucine, phenylalanine, leucine) and their total amount (mg per 100 ml of blood serum) were determined.

Results and Discussion

It was established that in all patients of the I and II group, who were under our supervision before the start of treatment, symptoms of intoxication and respiratory syndrome were observed. The lung tuberculosis process occupied more than three segments, and single destruction cavities prevailed. There was prevalence of bacterial excretion in patients in both

groups. Before treatment, patients in both groups showed protein metabolism disorders: an imbalance of individual amino acids, a decrease in the total amount of essential amino acids (TA EAC) by 1.2–1.3 times, a decrease in the total amount of replaceable amino acids (TA RAC) by 1.2 times, a decrease in the total amount of amino acids (TA AC) in patients of both groups by 1.2–1.3 times. After the end of the intensive phase of treatment a comparative analysis of the clinical efficacy of treatment of patients showed that, in patients of group I, the intoxication syndrome disappeared faster by 10.8 ± 0.97 days, and respiratory syndrome — 8.95 ± 1.68 days. In addition, the use of prebiotic (lactulose) and nutritional correction of protein metabolism in the complex treatment of patients with TB with impaired protein metabolism helps to restore impairing of protein metabolism. The results of the dynamics of protein metabolism showed that after 2 months of treatment, patients of group I had normalization of indicators of essential amino acids and they did not significantly differ from those in the control group. At the same time, patients in group II had a significantly lower content of such amino acids as histidine (1.4 times less), arginine (1.2 times less), threonine (1.2 times less), methionine (1.3 times less), phenylalanine (1.2 times less) compared with the corresponding indicators in the control group. Consequently, a decrease in the content of individual essential amino acids leads to a significant ($p < 0.05$) decrease (1.2 times less) in the total amount of essential amino acids of 9.1 ± 0.2 mg in 100 ml of blood serum compared with the corresponding indicator in the control group 10.9 ± 0.7 mg in 100 ml. It should be noted that in patients of group I, there is a significantly ($p < 0.05$) higher content of such replaceable amino acids as: serine, glutamic acid, glycine, glutamine. And total amount of replaceable amino acids was 19.8 ± 0.1 mg in 100 ml of blood serum, significantly ($p < 0.05$) higher compared with the corresponding indicator of 18.1 ± 0.2 mg in 100 ml of blood serum in patients of group II. This indicates that patients of group I had a normalization of indicators of the content of replaceable amino acids and they did not significantly differ from those in the control group. In patients of group II, the significantly lower content of replaceable amino acids continues to be determined: glutamic acid (1.4 times less), glycine (1.2 times less), alanine (1.1 times less), glutamine (1.1 times less) and a decrease (1.1 times less) of the total amount of replaceable amino acids 18.1 ± 0.2 mg in 100 ml of serum compared to the corresponding indicator in the control group of 19.7 ± 0.9 mg in 100 ml. In patients of group I, there is a significant ($p < 0.05$) higher level of the total amount of essential amino acids (10.1 ± 0.1 mg in 100 ml of blood serum), the total amount of replaceable amino acids (19.8 ± 0.1 mg in 100 ml of serum) and total amount of amino acids (29.9 ± 0.2 mg in 100 ml of serum) compared with the corresponding indicators in group II. And in patients of group II, after the treatment, there was a tendency to increase the total amount of essential amino acids (9.1 ± 0.2 mg in 100 ml of blood serum), the total amount of replaceable amino acids (18.1 ± 0.2 mg in 100 ml of blood serum) and the total amount of amino acids (27.2 ± 0.5 mg in 100 ml of serum) compared with the corresponding indicators in the control group ($p < 0.05$).

Conclusions

Our research results convincingly indicate that the use of nutriological correction of protein metabolism in the complex treatment of patients with first time diagnosed pulmonary tuberculosis helps to restore impairing of protein metabolism and increase the effectiveness of treatment.

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**INSTRUMENTAL DIAGNOSTICS OF THE HEPATO-BILIARY SYSTEM
IN PATIENTS WITH THE FIRST TIME DIAGNOSED PULMONARY TUBERCULOSIS**

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Introduction

In recent years, the matter of the effectiveness and results of tuberculosis treatment has become particularly significant, due to the rapid development of tuberculosis in combination with other diseases. Patients with TB in combination with viral hepatitis are at risk for severe hepatotoxic adverse reactions that most often develop in the presence of liver damage. Due to unexpressed clinical symptoms of liver damage, instrumental research methods have great importance in their diagnosis. In recent years, ultrasound diagnosis is widely used as a diagnostic method, which helps to select the best tactics for managing patients with tuberculosis in conjunction with the concomitant pathology of the liver. It is a leading place among the instrumental methods of research of various organs and systems. This is due to their high informativity, the lack of contraindications, relatively affordable cost.

Aim

Is to evaluate the effectiveness of application of ultrasound diagnosis of the hepatobiliary system in patients with first time diagnosed tuberculosis (FDTB) of the lungs.

Material and Methods

In a clinical study participated 45 patients with FDTB of the lungs in the age group of 25 to 62 years. Among these patients were 19 (42.2 %) women and 26 (57.8 %) men. Patients were divided into two groups, which did not differ by age, sex, type of tuberculosis process and comorbidity: I — patients with FDTB of the lungs without concomitant liver disease (53.3 % of the total number of patients); II — patients with FDTB of the lungs in combination with viral hepatitis B and/or C (46.7 % of the total number of subjects). The ultrasound of the hepatobiliary system was performed on the VOLUSON-730 Expert using linear and convection sensors at a frequency of 3.5–10 MHz, which included 2D visualization, Doppler color mapping, research in 3D + PD mode. In the ultrasound of the abdominal cavity in the 2D visualization system was performed a scan of the abdominal cavity in two projections — horizontal and vertical. This estimated state liver contour (smooth, small-wavy, large-wavy), front and back size of liver particles, the structure of the liver parenchyma (homogeneous, moderately heterogeneous, expressed heterogeneous or «nodular»), echogenicity of the liver (normal or elevated to varying degrees — from inconsiderable to expressed), diameter and patency of the portal vein, liver's veins, intrahepatic bile ducts and the total bile duct, the presence of recanalization of the paramubical vein, the linear size and area of the spleen, the presence of a free fluid in the abdominal cavity, the state of the gallbladder and pancreas.